

# Stroke

## Beat the Clock:

# Time Matters!

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# The Perceptions of Stroke

## MYTH

- Stroke is not preventable
- Stroke cannot be treated
- Stroke only strikes the elderly
- Stroke happens in the heart
- Stroke recovery ends after 6 months

## REALITY

- Many strokes are preventable
- Stroke can be treated
- Anyone can have a stroke
- Stroke is a “Brain Attack”
- Stroke recovery can last a lifetime

# Time is Brain

- Every second 32,000 brain cells die
- 1.9 million brain cells per minute
- 14 billion synapses are lost per minute
- Without treatment, areas the size of a pea die every 12 minutes

# Impact of Stroke

- Stroke is the fifth leading cause of death in the U.S.
- The number one cause of adult disability
- Every year nearly 800,000 Americans have a new or recurrent stroke
- Estimated direct and indirect costs of CVD and stroke in the U.S. is \$316.1 billion
- No age limit for stroke
- Frequently takes people out of the workforce, and leaves them dependent on others for care

# So What Do We Do?

- PREVENTION!!!!!!!
- Approximately 80% of strokes are preventable
- Acute treatment possible up to 8 hours post stroke
- Clotbuster: t-PA is the only FDA approved treatment, but must be administered within a 3 hour window from onset of symptoms; current t-PA use is only 3-5% nationally
- Research-Always looking at novel treatments to salvage brain
- Education- Both the public and the medical community that serves them

# Risk Factors for Stroke

## Unmodifiable

- Age
- Race
- Gender
- Prior stroke
- Genes/family

## Modifiable

- High blood pressure
- Diabetes
- Smoking
- High Cholesterol
- Heart disease
- Atrial Fibrillation
- Alcohol abuse
- Illicit drug use
- Poor diet/lifestyle
- Overweight BMI  $\geq 25$
- Sedentary lifestyle

# Signs & Symptoms – F.A.S.T.

F: FACE – sudden drooping of ONE side of the face

A: ARM – sudden numbness, clumsiness, or weakness of one arm/leg

S: SPEECH – sudden difficulty speaking or understanding language: slurred speech

T: TIME – **call 911** and get to the hospital immediately

# What Is Stroke ?

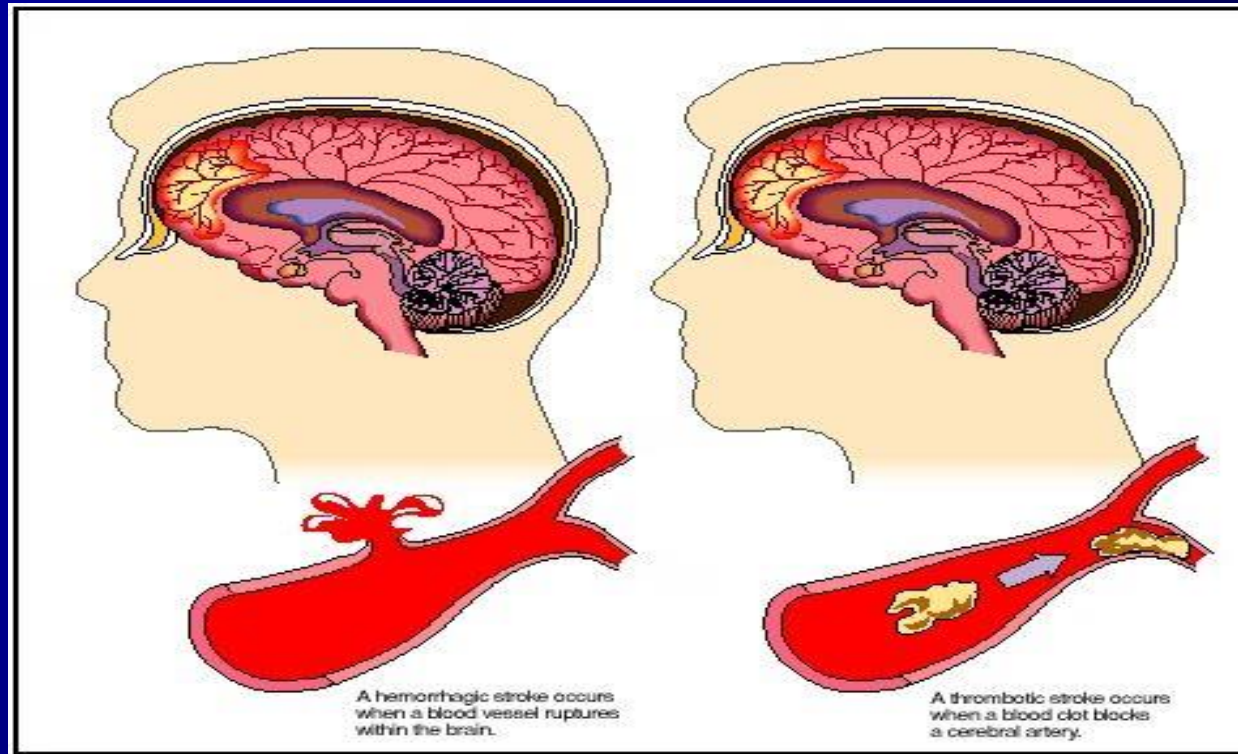
*A stroke occurs when blood flow to the brain is interrupted by a blocked or burst blood vessel*

- ❑ Also may be referred to as a “Brain Attack”
- ❑ Time is critical to survival and recovery

**Time is brain!!**



# Two Types of Stroke



**Hemorrhagic**  
Bleeding inside Brain  
↓  
Possible Surgery/ ICU  
Coma management

**Ischemic**  
Blood Clot/Obstruction  
↓  
Administer Drug: t-PA  
“Clot Buster”

# Transient Ischemic Attacks (TIAs)

- Stroke-like symptoms that usually resolve within 60 minutes and cause no permanent damage are called transient ischemic attacks (TIAs)
- TIAs are known as “warning strokes”
- 1/3 of people that have had one or more TIAs will have a stroke
- TIAs can occur days, weeks or months prior to a stroke
- 50% of people that had TIAs had a stroke within one year

(AHA, 2009)

# What if symptoms go away?

- They still need to be evaluated!
- This could be a warning that a big stroke is on the way
- One study looked at patients diagnosed with TIA in ER
  - Within 90 days 10% of all patients (n=1707) had a stroke

HALF of these happened within 1<sup>st</sup> 48 hours!!

# IV tPA, the “Gold Standard”

- FDA Approved (1996)
- Only 8% of AIS are eligible for IV tPA
  - Narrow time window
  - Risk of cerebral and systemic hemorrhage

Achieves early reperfusion in only 13-50% of large vessel occlusion

# IV t-PA Extended Window 3 - 4.5 hours

- ECASS III Study (Published in New England Journal of Medicine on Sept. 25, 2008)
- Slightly higher risk of hemorrhage, however, statistically significant benefit
- IRB approved
- ASA published statement to endorse use
- Not FDA approved

# Endovascular Intervention

- Last Known Normal – 6 hours or less
- NIHSS between 8 – 29 or cortical signs
- Confirmed large vessel occlusion
- Treatment is extremely fast
  - Imaging to groin puncture <60 minutes
  - Imaging to reperfusion <90 minutes
- For every four patients treated, one more patient is independent at long term follow up



# PATIENT CASE REPORT

## Acute Ischemic Stroke Follow-up

### REVASCULARIZATION WITH THE SOLITAIRE STENT RETRIEVER

A Patient Case Report  
by:

Dr. Seuss

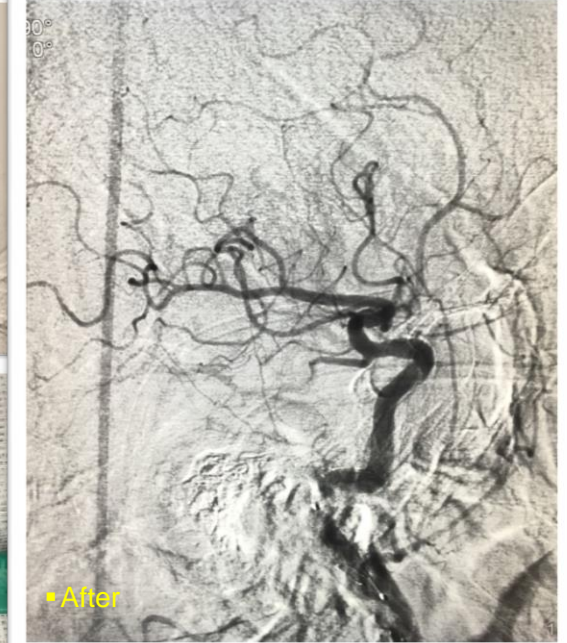
#### PATIENT PRESENTATION

- **Initial NIHSS:** 20
- **Time Symptom Onset:** 13:30
- **Patient History:** 61 y/o female presented with left hemiparesis, left facial droop, right gaze deviation and slurred speech. Patient has a history of prior stroke, peripheral vascular disease, diabetes and carotid endarterectomy

#### CASE CONCLUSION

- **Total Door to Puncture Time:** 2h 23min
- **Post Procedure NIHSS:** 2
- **Comments:** Patient was walking around independently on day two and was discharged home

#### CASE IMAGES



Time of Symptom  
Onset  
13:30

Evaluated at  
Hospital  
15:10

TPA  
Administered  
16:00

Intervention  
Begins  
17:25

TICI 2c  
Revascularization  
NR

# PATIENT CASE REPORT

## Acute Ischemic Stroke Follow-up

### REVASCULARIZATION WITH THE SOLITAIRE STENT RETRIEVER

A Patient Case Report  
by:

Dr. Welby

#### PATIENT PRESENTATION

- **Initial NIHSS:** 16
- **Time Symptom Onset:** 10:20AM
- **Patient History:** 49 y/o male presented with left hemiparesis, dysarthria, sudden slurred speech and weakness. Patient was newly diagnosed with cardiac myocarditis.

#### CASE CONCLUSION

- **Total Procedure Time:** 38 minutes
- **Post Procedure NIHSS:** 0
- **Comments:** Patients NIHSS was 0 in 24 hours and he was discharged home 3 days later!

#### CASE IMAGES



Time of Symptom  
Onset  
10:20AM

Evaluated  
Referring  
Hospital

Arrived at  
Interventional  
Hospital  
14:05

Intervention  
Begins  
14:27

TICI 3  
Revascularization  
14:57





# How can you prevent stroke?

- Know your risk factors for stroke: diabetes, high blood pressure, etc.
- Follow your doctor's advice, take medications as prescribed
- Modify your risk factors Example: lose weight, control high blood pressure by taking the medications your doctor prescribed
- Consider changing your lifestyle – example become more physically active, eat a good diet.

# Learn to recognize a stroke.

## *Time lost is brain lost.*

- Stroke is a medical emergency
- Recognition is key to early treatment
- Stroke Centers / standards of care = better outcomes
- Stroke will continue to be a state & nationwide area of focus

American Heart Association  
American Stroke Association

Stroke Update

# History of GWTG - Stroke

- Significant opportunity to improve quality of care
- Created GWTG- Stroke in 2003
- Nearly 3,000 hospitals (Jan 17, 2018)
- 5 million patient records to benchmark against
- Target: Stroke developed as an extension of GWTG - Stroke in early 2010

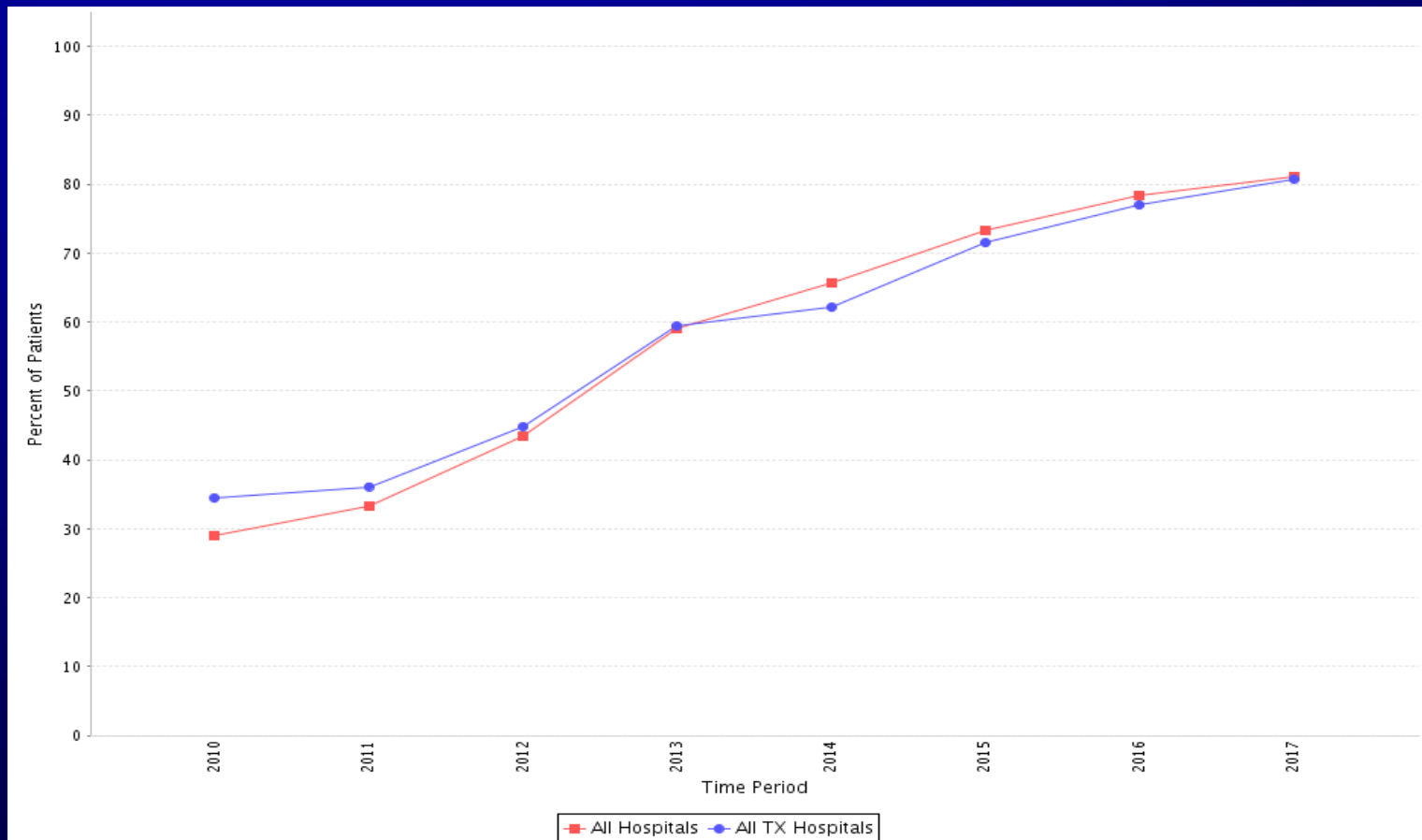
# Target: Stroke

- A National quality improvement campaign
- Stroke Teams work towards eliminating delays in treatment
- Ultimate Goal – improve outcomes
  - Door-to-Needle (DTN)  $\leq 60$  minutes (2010)
  - Goal is DTN  $\leq 45$  min (2015)

# Time to IV tPA – 60 min

## Texas Hospitals vs All (GWTG 1/18)

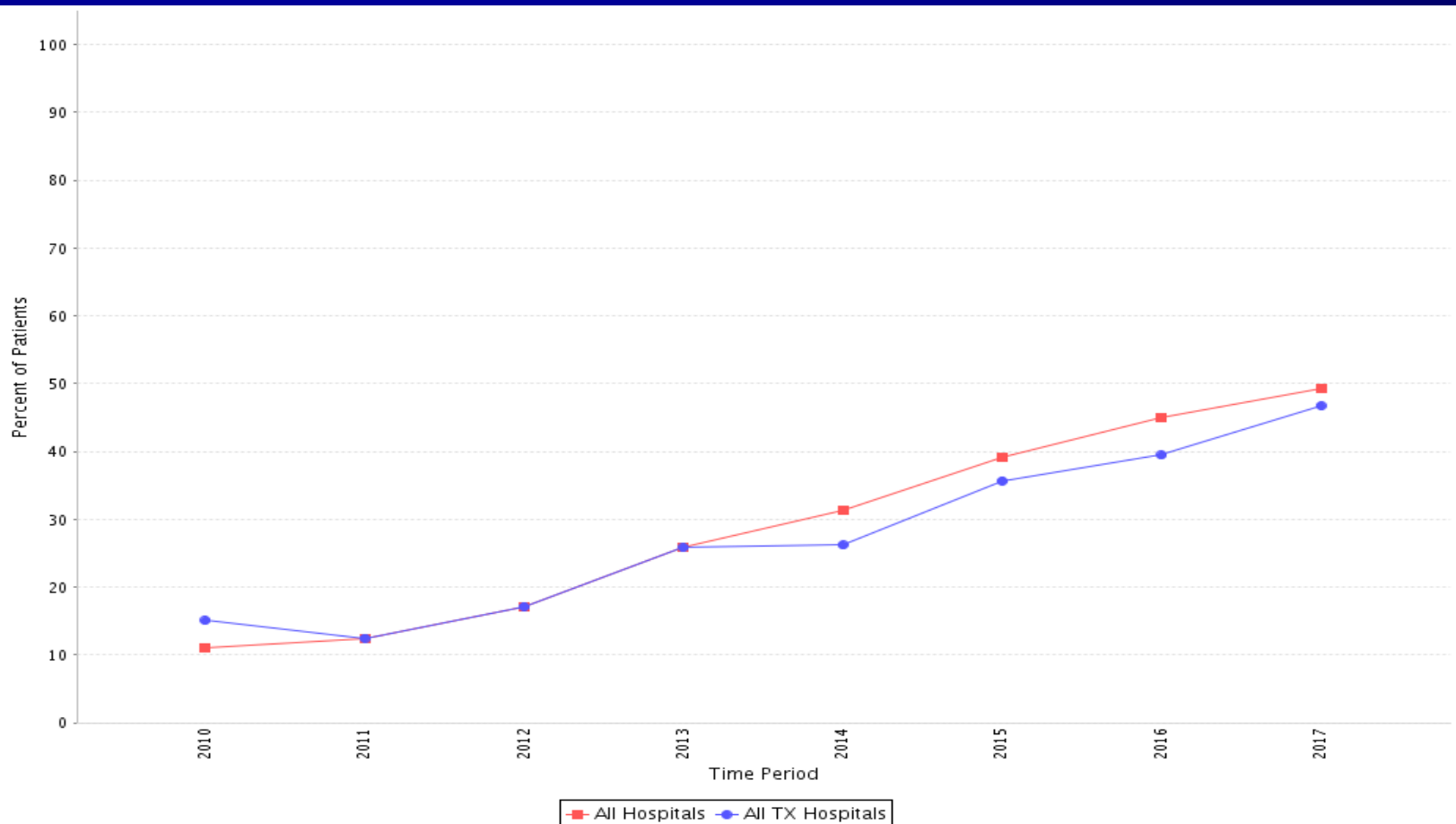
Percent of acute ischemic stroke patients receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less.



# Time to IV tPA – 45 min

## Texas Hospitals versus All (GWTG 1/18)

Percent of acute ischemic stroke patients receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 45 minutes or less.



# Texas Compared to All Hospitals

## Age & Diagnosis

Data For: Age											
Note: Time periods at the end of the graph and data table have been omitted because there were no patient records during that time.											
Benchmark Group	Time Period	<18	18 - 45	46 - 65	66 - 85	>85	Total	Mean	Standard Deviation	Median	Range
All Hospitals	2017	128 (0%)	33502 (6.1%)	176004 (32%)	259822 (47.2%)	81321 (14.8%)	550777	69.5	20.2	70	-1 - 7373
All TX Hospitals	2017	15 (0%)	3246 (7.7%)	15574 (36.7%)	18733 (44.2%)	4831 (11.4%)	42399	67.2	14.8	68	5 - 118

Data For: Diagnosis										
Note: Time periods at the end of the graph and data table have been omitted because there were no patient records during that time.										
Benchmark Group	Time Period	Ischemic stroke	Transient ischemic attack (<24 hours)	Subarachnoid Hemorrhage	Intracerebral Hemorrhage	Stroke not otherwise specified	No stroke related diagnosis	Elective Carotid Intervention only	Blank ("Missing diagnosis")	Total
All Hospitals	2017	379791 (67.3%)	68284 (12.1%)	20703 (3.7%)	61854 (11%)	5219 (0.9%)	9995 (1.8%)	5737 (1%)	12817 (2.3%)	564400
All TX Hospitals	2017	28440 (66.5%)	5224 (12.2%)	1595 (3.7%)	4553 (10.7%)	511 (1.2%)	282 (0.7%)	350 (0.8%)	1780 (4.2%)	42735



# New ACC/AHA High Blood Pressure Guidelines Lower Definition of Hypertension

Released at AHA Scientific Sessions **Nov 13, 2018**

# Definition of Hypertension – in mmHg

Classification	Systolic BP, mmHg		Diastolic BP, mmHg
Normal	<120	And	<80
Prehypertension	120-129	And	<80
Stage I Hypertension	130-139	Or	80-89
Stage II Hypertension	$\geq 140$	Or	$\geq 90$
Hypertensive Crisis consult your doctor immediately	>180	And/or	>120

American Heart Association  
American Stroke Association

Stroke Resources

Regaining  
Independence

Finding Support  
You Are Not  
Alone

For Family  
Caregivers

For Support  
Group Leaders

Healthy Living  
After Stroke

Inspirational  
Stories

An online Support Network  
by, and for, survivors and  
their caregivers.

JOIN FOR FREE TODAY



# Rehabilitation Kit

## ■ Patient Resources

- Rehab Guidelines
- Making Rehab Decisions guide
- Checklist – “Stroke Rehab Planning List”


## ■ Healthcare Provider


- Five 2-page summaries of key 2016 recommendations
- National Stroke Coordinator Webinar
- New 2016 Rehab guidelines





[http://www.strokeassociation.org/STROKEORG/AboutStroke/Recovery-Healthcare-Professional-Resource-Page\\_UCM\\_496009\\_Article.jsp#.WmDZiK2ouzm](http://www.strokeassociation.org/STROKEORG/AboutStroke/Recovery-Healthcare-Professional-Resource-Page_UCM_496009_Article.jsp#.WmDZiK2ouzm)


# Stroke Warmline

 Share 3

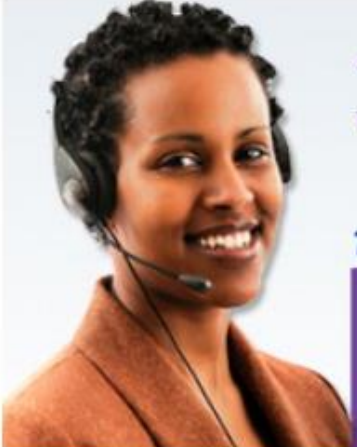
 Like 381

 Tweet

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 Share 699

Updated: Apr 14, 2017



**"Sometimes you need to hear from someone who's walked a mile in your shoes."**

***The Warmline: compassion born out of firsthand experience***

**Call 1-888-4-STROKE  
(1-888-478-7653) to reach the Warmline team**

The Warmline connects stroke survivors and their families with an ASA team member who can provide support, helpful information or just a listening ear. We have trained several members of ASA's national call center to answer your questions about stroke.

Call us Monday- Friday between **8:00 a.m.-5:00 p.m. CT** at **1-888-4-STROKE** (1-888-478-7653).



# References

Clinical tools library: [heart.org/strokeclinicaltools](http://heart.org/strokeclinicaltools).

Fonarow G. C., Smith E.E., Saver J.L., Reeves M.J., Hernandez A. F., Peterson E.D, Sacco R. L., Schwamm L. H., Improving Door-to-Needle Times in Acute Ischemic Stroke: The Design and Rationale for the American Heart Association/American Stroke Association's Target: Stroke Initiative. *Stroke*. 2011;42:00-00. [Slide Set - American Heart Association](#). Downloaded from website: [www.heart.org/idc/groups/stroke-public/.../ucm\\_431317.ppt](http://www.heart.org/idc/groups/stroke-public/.../ucm_431317.ppt) on 4/7/2013

Guidelines for the Early Management of Adults With Ischemic Stroke: A Guideline From the American Heart Association/American Stroke Association Stroke Council, Clinical Cardiology Council, Cardiovascular Radiology and Intervention Council, and the Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Groups: The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists *Stroke*, –January 2013; 44: 870 – 947. Retrieved online April 15, 2013 at <http://stroke.ahajournals.org/content/44/3/870>

Schwamm LH, Fonarow GC, Reeves MJ, et al. Get With The Guidelines-Stroke is associated with sustained improvement in care for patients hospitalized with acute stroke or TIA. *Circulation* 2009;119:107-115.

Summers D., Leonard A, Wentworth D., Saver J. L., Simpson J., Spilker J.A., Hock N., Miller E., Mitchell P. H., on behalf of the American Heart Association Council on Cardiovascular Nursing and the Stroke Council. Comprehensive overview of nursing and interdisciplinary care of the acute ischemic stroke patient: a scientific statement from the American Heart. Association. *Stroke* 2009;40;2911-2944

Target stroke resources. [www.targetstroke.org](http://www.targetstroke.org). [http://www.strokeassociation.org/STROKEORG/Professionals/Target-Stroke\\_UCM\\_314495\\_SubHomePage.jsp](http://www.strokeassociation.org/STROKEORG/Professionals/Target-Stroke_UCM_314495_SubHomePage.jsp)